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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/603,395	06/24/2003	Mohammad A. Safai	10004173-3	3063

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EXAMINER	
MADDEN, GREGORY VINCENT	
ART UNIT	**PAPER NUMBER**
2622	

DATE MAILED: 08/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/603,395	SAFAI, MOHAMMAD A.	
	Examiner	Art Unit	
	Gregory V. Madden	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 16-18* is/are rejected.

7)☒ Claim(s) *9-15* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 8, 16, and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Dunton et al. (U.S. Pat. 6,151,069).

First, regarding **claim 1**, the Dunton reference teaches a digital image processor (processing block 110), the processor comprising a preprocessor (correction block 210) comprising hardware for preprocessing digital images received from the image capture unit (input of original image data) and storing the digital images in a memory (local storage device 122 via local storage interface 350). Further, Dunton discloses a postprocessor (compression logic block 212) comprising hardware arranged to receive digital images (from preprocessor 210) and to postprocess the digital images into viewable form (i.e. compress the digital images). Please refer to Figs. 1 and 2, Col. 4, Lines 17-55, Col. 5, Lines 3-26, and Col. 7, Lines 23-30.

As for **claim 2**, the Dunton reference teaches the limitations of claim 1 above, and Dunton also shows that the digital image processor comprises a system bus (bus 242) wherein the preprocessor (210), the postprocessor (212), and an interface for the memory (local storage interface 350) are coupled to the system bus. Please see Fig. 2.

In regard to **claim 8**, Dunton discloses all of the limitations of claim 2 above, and Dunton further teaches that the preprocessor (correction block 210) includes a non-uniformity corrector (pixel substitution, etc.) capable of correcting non-uniformities included in the digital image received from the image capture unit. See Fig. 2 and Col. 4, Lines 31-47.

Considering **claim 16**, again the limitations of claim 2 are taught above, and Dunton teaches that the postprocessor (212) is arranged such that its operation does not interfere with the operation of the preprocessor or taking pictures using the digital camera. Note in Fig. 2 that the compression logic block 212 is controlled separately from the preprocessor (210) and image capturing, and thus postprocessing, such as image compression, does not interfere with either operation.

Finally, regarding **claim 18**, the Dunton reference discloses all of the limitations of claim 1 above, and Dunton further shows in Fig. 1 that the digital camera comprises an image capture unit (sensor 114) arranged to output digital images (to processor 110) and a memory (local storage 122) for storing the digital images. Again, please refer to Fig. 1 and Col. 2, Line 46 – Col. 4, Line 29.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al. (U.S. Pat. 6,151,069) in view of Takizawa et al. (U.S. Pat. 6,388,706).

Considering **claim 3**, the limitations of claim 2 are taught above by Dunton, but the Dunton reference does not teach that the postprocessor includes a color interpolator arranged to derive an

unknown pixel color value associated with a first pixel based upon at least one known pixel color value associated with at least one other pixel using pixel color weight factors associated with an image sensor in the image capture unit. However, the Takizawa reference does teach a digital image processor (image processing section 7) for use in a digital camera including a color interpolator (interpolation section 7a) arranged to derive an unknown pixel color value associated with a first pixel based upon at least one known pixel color value, as is taught in Fig. 1 and Col. 5, Line 66 – Col. 8, Line 54. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated the color interpolator of Takizawa with the postprocessor of Dunton. One would have been motivated to do so because it is advantageous to provide a color interpolator in a processing section so as to allow for excellent color reproduction and sharpness, and performing such color interpolation during postprocessing enables any sensor-specific defects to be corrected during preprocessing, thus producing a more accurately corrected image.

In regard to **claim 4**, the limitations of claim 3 are taught above, and the Takizawa reference further discloses a color pattern setting buffer (21) that is connected to the color interpolator (interpolation section 7a) and capable of storing image sensor data associated with the image sensor included in the image capture unit, the image sensor data being used to derive the associated pixel color weight factors. See Fig. 3 and Col. 6, Lines 19-40.

As for **claim 5**, again the limitations of claim 3 are taught above, and the Takizawa reference also teaches that the processor (7) includes an RGB reconstructor (color transformation section 7b) that is connected to the color interpolator (7a) and capable of converting the digital image to an RGB format as needed. See Fig. 1 and Col. 8, Lines 57-67.

Regarding **claim 6**, Dunton in view of Takizawa discloses the limitations of claim 5 above, and the Takizawa reference further shows a digital image compressor (image compression section 9) connected to the color interpolator (7a) and RGB reconstructor (7b), the digital image compressor being

capable of compressing digital images. See Fig. 1 and Col. 6, Lines 4-7. Also, the Dunton reference shows a digital image compressor (222) in the postprocessor (212) in Fig. 2.

Considering **claim 7**, the limitations of claim 6 are taught above, and the Takizawa reference shows in Fig. 1 that the color interpolator (7a), RGB reconstructor (7b), and compressor (9) are each connected to a system bus (and thus controlled by CPU 11). The Dunton reference also shows that the postprocessor (212) is connected to a system bus (242) in Fig. 2.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dunton et al. (U.S. Pat. 6,151,069) in view of Fukushima et al. (U.S. Pat. 6,253,023).

Finally, in regard to **claim 17**, the limitations of claim 1 are taught above by the Dunton reference, but while the Dunton reference does show that the preprocessor (210) and the postprocessor (212) are separately connected to the system bus (242), Dunton does not specifically disclose that the digital image processor is operable in a first mode in which data corresponding to preprocessed images from the preprocessor are directed to the memory, thereby bypassing the postprocessor, and the digital image processor is also operable in a second mode in which data corresponding to preprocessed images from the preprocessor are directed to the postprocessor for postprocessing. However, the Fukushima reference does teach a digital camera (2100) wherein data corresponding to preprocessed images from a preprocessor (process circuit 2004) can either be directed to a memory (2008), thus bypassing postprocessing (via compression circuit 2006) in a first mode, or alternatively, in a second mode, the data corresponding to the preprocessed images from the preprocessor (2004) are directed to the postprocessor (2006) for postprocessing (e.g. compression). Fukushima teaches this limitation in Fig. 15 and Col. 28, Lines 35-56. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to have included the ability to bypass the postprocessing step, as shown by Fukushima, with the image processing of Dunton. One would have been motivated to do so because by bypassing

postprocessing in certain instances, unnecessary compression and other processing (such as when high-resolution images are desired) can be avoided, and thus total processing time can be greatly reduced.

Allowable Subject Matter

Claims 9-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

First, in regard to **claim 9**, the prior art was not found to teach or reasonably suggest, in conjunction with the limitations of claim 8, a preprocessor that includes a programmable sampling filter connected to the non-uniformity corrector, a modular transformer connected to the programmable sampling filter, and a ditherer connected to the modular transformer.

As for **claims 10-15**, because these claims depend either directly or indirectly from claim 9, they too are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Tanaka (U.S. Pat. 5,525,957).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gregory V. Madden whose telephone number is 571-272-8128. The examiner can normally be reached on Mon.-Fri. 8AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc Yen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Gregory Madden
August 10, 2006

NGOC-YEN VU
SUPERVISORY PATENT EXAMINER